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Evaluating a Mind-Body Approach for Military Veterans with Chronic Pain

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by

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Abstract

The primary goal of this study was to evaluate the effectiveness of an eight-week Mind-Body Pain Management group at a VA Health Care System in the Midwest. The Mind-Body Pain Management group is offered to Veterans who exhibit symptoms of chronic physical pain. Effectiveness was determined by examining Veterans' pretest, posttest, and follow-up responses to the Quality of Life Inventory (QOLI), Pain Rating Scale, and the VA Pain Outcomes Questionnaire (VA-POQ). A secondary objective of this study was to investigate potential relationships between Veterans' demographic information (gender, age, combat history, and service-connected disability status), as well as access to prescription narcotic pain medication with regard to the effectiveness of the Mind-Body Pain Management program.

This study employed a quantitative design in the form of secondary analysis of available data. The study found no statistically significant results with regard to overall scores from the survey tools. Upon completion of the Mind-Body Pain Management group, participants reported improvement in QOLI subscales of Self-esteem and Goals & Values. Likewise, the VA-POQ provided subscales and found improvements in the areas of Mobility and Negative Affect. Areas that remained unchanged or noted a decline in improvement after intervention for the QOLI included the subscale Health. Respondents reported worse scores for VA-POQ subscales: Activities of Daily Living, Vitality, and Fear after completing the Mind-Body Pain Management group. Regarding demographic information, participants' gender and service-connected disability status played a role in the effectiveness of the Mind-Body Pain Management program.

This study will afford the VA Health Care System information regarding the degree to which the Mind-Body Pain Management group is effective and explore potential correlations among individual characteristics of participants with regard to the effectiveness of the program in order to make appropriate recommendations for the group.

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Introduction

Chronic pain has further implications for patients than the physical pain itself. Chronic pain impedes patients' well-being. It can be distracting and limiting, frustrating and tiresome. Chronic pain can affect patients' employment, their relationships, their concentration, and their emotions. Chronic pain has the potential to interfere with nearly every aspect of one's daily life. The American Chronic Pain Association defines chronic pain as "ongoing or recurrent pain, lasting beyond the usual course of acute illness or injury or more than 3 to 6 months, and which adversely affects the individual's well-being" (The American Chronic Pain Association, 2012).

Chronic pain affects a wide variety of Americans. According to data compiled by the United States Centers for Disease Control, in 2010, 22.7% of all respondents who participated in the National Health Interview Survey reported a diagnosis of arthritis and 29.2% of respondents reported chronic joint symptoms. The same study found 28.8% of respondents reported pain in the lower back, 16.4% reported migraines or severe headaches, 15.8% reported neck pain, and 5.0% reported facial or jaw pain (Schiller, Lucas, Ward, & Peregoy, 2012). Likewise, according to the U.S. Social Security Administration, diagnoses related to musculoskeletal systems and connective tissues are the leading cause (27.0%) of physical disabilities by individuals receiving some form of Social Security assistance i.e. disability insurance, public disability benefits, social security, or workers' compensation (Parent, Sayman, & Kulzer, 2012).

Patients with pain complaints account for nearly 20% of all ambulatory hospital visits in the U.S. (The Management of Opioid Therapy for Chronic Pain Working Group, 2010). With the average cost of hospital visits reaching $1,853 per day it is imperative to

find effective means to manage chronic pain (U.S. Census Bureau, 2011). Finding useful ways to treat chronic pain is not only a cost saving measure for the U.S. healthcare industry, more importantly, effective treatments will also provide relief for patients with chronic pain.

With regard to military Veterans, chronic pain has been a concern for generations. The Veterans Benefits Administration published their 2011 Annual Benefits report which highlights the top ten service-connected disabilities according to era (Veterans Benefit Administration, 2012). Within the VA system, Veterans who attained or exacerbated an illness or injury during their active military service are entitled to a monetary compensatory benefit. This condition is termed a "service-connected disability" (Department of Veterans Affairs, 2012). According to the report, World War II Veterans report service-connected traumatic arthritis which is the eighth most prevalent claim for WWII Veterans. For Veterans involved in the Korean Conflict, traumatic arthritis and impairment of the knee are widely prevalent (ranked number seven and ten respectively). Paralysis of the sciatic nerve and paralysis of the median nerve are common service-connected disabilities for Vietnam Era Veterans ranking number five and ten. Gulf War Veterans claim a host of painful service-connected disabilities including lumbosacral or cervical strain (#2), limitation of flexion, knee (#3), tendon inflammation (#4), traumatic arthritis (#7), limitation of motion of the ankle (#8), and degenerative arthritis of the spine (#9). Veterans who have served during peacetime also are service-connected for painful conditions including impairment of the knee (#3), traumatic arthritis (#5), limitation of motion of the ankle (#7), limitation of flexion, knee (#8), and lumbosacral or cervical strain (#9) (Veterans Benefit Administration, 2011). All of the preceding

service-connected conditions can cause a great deal of physical pain and require effective management. Furthermore, it has been reported that:

> *"More than 50% of male VA patients in primary care report chronic pain. The prevalence may be even higher in female Veterans. Pain is the most frequent presenting complaint of returning Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) soldiers (> 50% of OEF/OIF Veterans signing into the VHA)"* (The Management of Opioid Therapy for Chronic Pain Working Group, 2010).

Given the prevalence of military Veterans reporting chronic pain symptoms to their VA providers, the Veterans Healthcare Administration (VA) has made pain management a top priority. The overall objective and implementation of VHA Directive 2009-053 *Pain Management* was to develop a comprehensive and multidisciplinary approach to the management of pain that will improve the quality of life for Veterans (Veterans Health Administration, 2009). Corroborating projects within the VA have been developed including *Pain as the 5th Vital Sign* strategy in 2000. This guide offers primary care providers direction on how to make thorough assessments and appropriate recommendations for Veterans with chronic pain (National VA Pain Management Coordinating Committee, 2000). The VA also developed the *VHA Pain Outcomes Toolkit* in 2003 which assists VA healthcare providers to formulate appropriate methods to assess and treat chronic pain as well as implement processes to measure pain treatment outcomes (National VA Pain Outcomes Working Group; National VA Pain Management Coordinating Committee, 2003). The VA's response to pain management and recommendations for utilizing a multidisciplinary approach to treatment is similar to the

American Pain Society's (APS) revision of the *Quality Improvement Guidelines for the Treatment of Acute Pain and Cancer Pain*. In 2005, the APS found insufficient management of pain can be harmful to patients and costly to the healthcare economy. The APS provided recommendations for care settings to provide patients with a multidisciplinary approach including education, appropriate medications, exercise, and cognitive behavioral treatments (CBT) (Gordon, et al., 2005). Providing CBT and offering therapeutic support for patients with chronic pain is of particular interest for the field of social work.

Social workers are present in medical settings where most patients with chronic pain present to alleviate their symptoms. Additionally, clinical social workers within the VA setting are skilled in areas such as CBT and have received training in a variety of other therapeutic approaches which may be beneficial for patients living with chronic pain. Clifford points out in his article, *Coping with chronic pain: Assessing narrative approaches,* "Individuals suffering from chronic pain are of concern to social workers because such pain disrupts job, family, and overall social functioning and can lead to depression, excessive health concerns, and withdrawal from activities" (p. 266). Presently, schools of social work train potential social workers to work with their clients by utilizing an ecological perspective. Social workers are taught to view their clients within their environments. With regard to pain management, social workers offer a unique perspective that highlights and draws attention to all bio-psychosocial factors that may be contributing to a patient's chronic pain. Finally, social workers are often part of multidisciplinary teams, composed of other medical professionals, where best practices can be discussed and employed.

Social workers, who work with military Veterans struggling with chronic pain, would benefit from research that assesses the effectiveness of non-pharmacologic interventions aimed at treating chronic pain. The following research attempted to better understand the effectiveness of an eight-week Mind-Body Pain Management group at a VA Health Care System in the Midwest, using quantitative methodology in the form of secondary data analysis. A secondary objective of this study was to investigate potential relationships between Veterans' demographic information (gender, age, combat history, and service-connected disability status) as well as access to prescription narcotic pain medication with regard to the effectiveness of a Mind-Body Pain Management program.

Literature Review

Types of chronic pain among the general population

To understand the role chronic pain plays in society and healthcare, one must first study the prevalence of pain among the general population. Globally, chronic pain is a persistent problem. The World Health Organization (WHO) completed a study across 15 centers in Asia, Africa, Europe, and the Americas. They concluded that 22% of respondents reported persistent pain lasting six months or more. Of the individuals who reported chronic pain, the highest number of respondents (47.8%) reported persistent back pain. This was followed closely by headache and joint pain, 45.2% and 41.7% respectively (Gureje, Von Korf, Simon, & Gater, 1998).

Johannes et al. completed a vast survey of 27,035 participants to identify the pervasiveness of chronic pain among adults in the United States. The survey, like the WHO study, identified chronic pain as pain lasting greater than six months. Results of the survey found 30.7% of respondents reported chronic pain with 18% of respondents reporting the primary location of pain as low back (Johannes, Le, Zhou, Johnston, & Dworkin, 2010). Similarly, another study conducted by Peter Hart Research Associates found that 76% of Americans have either personally experienced chronic pain or they have a close family member or friend who has lived with chronic pain. Their research also found that young Americans (ages 18-24) are just as likely to experience chronic pain as older Americans (65+). Like the studies completed by the World Health Organization and Johannes et al., Hart Research Associates found back pain to be the most prevalent (28%) location of pain for respondents (Peter D. Hart Research Associates, 2003).

Chronic pain among military Veterans

Like the general population, military Veterans also experience chronic pain at alarming rates. In order to understand the full extent of chronic pain among Veterans, it is important to learn the terms and definitions the VA uses when providing healthcare for military Veterans. In order to assist VA providers who are treating Veterans with chronic pain, the Department of Veterans Affairs developed the *Chronic Pain Primer*. The *Chronic Pain Primer* defines chronic pain as "pain that exists for three or more months and does not resolve in response to treatment" (U.S. Department of Veterans Affairs, 2010). Additionally, the primer provides further explanation about psychogenic pain and chronic pain syndrome. When providers are unable to pinpoint the cause of a patient's pain and no physical findings are detected via x-rays, MRI, or CT scans it is not uncommon for patients to be told the pain is "all in their head." The *Chronic Pain Primer* relates that whether the pain is real or perceived, it is, nonetheless, painful for the patient and appropriate interventions need to be taken (U.S. Department of Veterans Affairs, 2010). Additionally, the term chronic pain syndrome is further defined in the primer. Chronic pain syndrome is different from chronic pain in that patients with chronic pain syndrome have developed a number of psychosocial problems as a direct result of their chronic pain (U.S. Department of Veterans Affairs, 2010).

A significant amount of research has been completed among military Veterans to identify the prevalence and types of chronic pain Veterans' experience. One such study surveyed Veterans who were enrolled in a VA healthcare system in western New York. Researchers found that 71% of respondents reported having physical pain. Of the total number of respondents who reported having pain, 35% reported constant pain. Most

importantly, those affected by chronic pain reported significant interference with their functionality and livelihood, especially relationships and mood (Crosby, Colestro, Ventura, & Graham, 2006).

Reid, Crone, Otis, & Kerns took their research a bit further and wanted to identify various pain complaints as they relate to differences in age among younger and older Veterans. Their research of 1,290 Veterans found that older Veterans (equal or greater than 65 years old) were more likely to report constant pain while younger Veterans (less than 65 years old) were more inclined to report greater pain intensity. Among younger Veterans, the primary location of pain was the back (31.9%) whereas the primary location of pain for older Veterans was the leg (32.3%). Furthermore, younger Veterans were more likely (40.4%) to receive service-connected monetary compensation for their pain than their older counterparts (19.4%) (Reid, Crone, Otis, & Kerns, 2002).

In addition to expenditures by the VA for service-connected disabilities due to pain, Veterans with chronic pain are more apt to utilize VA healthcare facilities to address their chronic pain. One study compared Veterans with and without chronic pain and found that Veterans with chronic pain had 2.2 more visits to VA outpatient clinics over the course of a year than Veterans who did not have chronic pain (Kerns, Otis, Rosenberg, & Reid, 2003).

With the wars in Iraq and Afghanistan ending, an estimated 625,000 Veterans are utilizing the VA for some or all of their health care (U.S. Department of Veterans Affairs, 2010). With this new and increasing population of returning Veterans, it is imperative to understand their chronic medical needs. Research has found nearly 47% of returning Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) Veterans reported

chronic pain issues. The primary locations of their pain were back (46%) and lower limbs (31%). Additionally, the same study found Veterans experienced significant functional difficulties due to chronic pain (Gironda, Clark, Massengale, & Walker, 2006). Journalist Colin Nelson interviewed the primary investigator of the preceding study, Dr. Ronald Gironda. According to Dr. Gironda, many of his patients with chronic pain were "depressed, demoralized, unemployed, and had no social contact" (Nelson, 2005, p. 12). Dr. Gironda's statement illustrates the encompassing role chronic pain can play in one's social, physical, and emotional life.

Intensifying Veterans' experiences with pain is co-occurring post-traumatic stress disorder (PTSD) among Veterans who also report chronic pain. According to one recent review, chronic pain complaints are frequently reported among patients who are also diagnosed with PTSD. Of interest, the traumatic experience that elicited Veterans' PTSD was not necessarily militarily related nor was the source of Veterans' report of chronic pain. These two events may have occurred independent of Veterans' military service (Gibson, 2012). Regardless of where Veterans' chronic pain and PTSD originated, the VA is responsible for providing exceptional and informed health care. A similar study examined the pervasiveness of co-occurring PTSD, chronic pain, and post-concussive symptoms in OIF/OEF Veterans. Findings included 42.1% of participants reporting all three disorders (Lew et. al, 2009). The complexity of medical and mental health issues among OIF/OEF Veterans supports the need for a multidisciplinary approach to treatment.

Patient beliefs about chronic pain

In order to begin developing effective multidisciplinary treatment programs, one must first understand how patients' beliefs about chronic pain may impact their ability to respond to treatment. Patient views of their chronic pain as it relates to their confidence to perform certain functional tasks can greatly impact experiences of pain related disability. A study examined the self-effectiveness of Veterans with chronic pain. Findings included a strong association between respondents' functional self-effectiveness and pain-related disability. A negative association was found between the two variables. Veterans with decreased confidence in their ability to perform functional tasks were found to have an increase in disability due to pain (Barry, Guo, Kerns, Duong, & Reid, 2003). A similar study looked at Veterans' motivation to self-manage their pain once they've acquired the tools to do so. Results of this study found Veterans who were more motivated to follow their therapist's recommendations regarding pain management were more apt to reach their personal treatment goals (Heapy et al., 2005).

Attitudes regarding chronic pain do not pertain solely to military Veterans. Research has been completed that assesses patient beliefs about chronic pain among the general population as well. Jensen, Turner, Romano, & Lawler (1994) completed a study which found positive associations between patients' attitudes about pain, specifically how emotions influence pain and how pain can be disabling, and breakdowns in psychosocial functioning (Jensen, Turner, Romano, & Lawler, 1994). This same study was replicated five years later with similar and consistent results with regard to emotions and beliefs about pain (Jensen, Turner, & Romano, 2001).

While completing a qualitative study of patients diagnosed with fibromyalgia, researcher Patrick Clifford sought to discover how chronic pain can affect one's identity

as a person. The identity of chronic pain was poignantly illustrated by one respondent who stated, "this is not the life I planned. The pain wears down my defenses. The tears flow endlessly in private" (Clifford, 1997, p. 270).

The attitudes of patients with chronic pain can play a role in the effectiveness of treatment even before treatment has been initiated. Pain helplessness, the idea that pain is controlling one's life and there is nothing that can be done about it, has been studied. Results have shown that decreases in pain helplessness, early in treatment intervention, can decrease levels of pain among patients at the conclusion of treatment. The authors of this same study recommend a cognitive behavioral approach to pain management in order to intervene with the cognitive thought processes associated with pain, specifically helplessness (Burns, Glenn, Bruehl, Harden, & Lofland, 2003). As previously indicated, mental health issues may co-occur with chronic pain. The attitudes and beliefs patients have about chronic pain may not only affect their physical wellness, these beliefs can also impact their mental health. Arnstein et al. (1999) examined the role beliefs of self-effectiveness play with regard to chronic pain and depression. Their findings suggest a "lack of belief in one's own ability to manage pain, cope and function despite persistent pain, is a significant predictor of the extent to which individuals with chronic pain become disabled and/or depressed" (Arnstein, Caudill, Mandle, Norris, & Beasley, 1999, p. 483).

Finally, attitudes and beliefs as they pertain to pain medication must be examined. Historically, pain medication has been the primary means of treatment for sufferers of chronic pain (The Management of Opioid Therapy for Chronic Pain Working Group, 2010). Society has come to view medication as an absolute cure and pain will dissipate

entirely if medication is taken. Unfortunately, this is not the case. There is no cure for chronic pain. Patients in Western society often struggle with the idea that their pain will be managed and not cured (Monsivais & McNeill, 2007).

Clinician attitudes regarding chronic pain

Understanding patients' beliefs about chronic pain is one step toward effective treatment. Another step that must occur is understanding clinicians' attitudes regarding chronic pain and appropriateness of available treatments. The medical community has seen an increase in community pain management centers specifically designed to treat chronic pain. Unfortunately, recent reports have indicated that pain management centers are underutilized. Possible explanations include obsolete thinking on the part of clinicians who feel pain management centers are a waste of time and resources. This notion is due to inconsistent and differing beliefs about what constitutes a positive outcome in the field of pain management (Geisser, Roth, & Williams, 2006). Pain management centers typically utilize a multidisciplinary approach to treatment where goals may be significantly different than the medical model of care clinicians are used to. A mutual understanding of treatment and goals needs to occur between clinicians and pain management centers in order to provide success for patients with chronic pain.

Beliefs about appropriate use of pain interventions merely skim the surface of clinicians' attitudes regarding pain management. Not unlike providers who treat patients in the private sector, clinicians working in the VA system have beliefs about chronic pain and chronic pain interventions. Matthias et al. (2010) discovered three emerging themes in their study of chronic pain beliefs of VA primary care providers. The first theme that was conveyed by providers was the importance of open communication and relationships

with their patients who have chronic pain. Second, VA providers expressed difficulties treating chronic pain patients due to persistent opioid use, unclear patient truthfulness, and worries about medication diversion. The final theme that emerged from the study was the emotional toll providers feel when working with chronic pain patients that can be exacerbated due to limited support within their VA workgroups (Matthias, Parpart, Nyland, Huffman, Stubbs, & Sargent, 2010). Another study that researched VA primary care providers' attitudes toward chronic pain revealed that most clinicians (71%) felt confident in their ability to effectively treat patients with chronic pain. However, 73% of the same sample reported great frustration when working with patients who have chronic pain (Dobscha, Flores, Tansill, & Gerrity, 2008). This frustration can lead to concurrent ineffective coping strategies among patients and their providers. Similarly, Mitchinson, Kerr, & Krein (2008) surveyed 279 VA primary care providers and their perceptions of pain. Results included 77% of providers surveyed viewed pain control as a top priority. Those who did not view pain control as a priority in their practice were more likely to refer Veterans to a specialist. Interestingly, 74% of providers surveyed reported feeling satisfied with their ability to provide quality care to their chronic pain patients, however, only 30% reported satisfactory ratings with regard to access and availability of pain specialty services within their VA facilities (Mitchinson, Kerr, & Krein, 2008).

Given the nature and attributes of chronic pain as well as the perceptions of pain by patients and providers, one must ask, what is the best way to treat patients with chronic physical pain?

Interventions among the general population

Much research has been completed about various forms of treatment and interventions to assist patients who experience chronic pain. Recent research, VA and non-VA, has revolved around multidisciplinary and complementary care with regard to pain management (Altmaier, Lehmann, Russell, Weinstein, & Kao, 1992; Burns, Glenn, Bruehl, Harden, & Lofland, 2003; Caudill, Schnable, Zuttermeister, Benson, & Friedman, 1991; Glenn & Burns, 2003; Kabat-Zinn, 1982; Cook, Stegner, & Ellingson, 2010; Dobscha, et al., 2009; Donta, et al., 2003). Historically, an over-reliance on pain medication has been the primary treatment offered for patients with chronic pain (The Management of Opioid Therapy for Chronic Pain Working Group, 2010). Recent developments in research have found that opioid use among chronic pain sufferers is not always the best intervention and the medical community is beginning to find alternative and complementary ways to treat chronic pain (The Management of Opioid Therapy for Chronic Pain Working Group, 2010; Gordon, et al., 2005). In addition to pharmacological interventions to treat chronic pain, a plethora of complementary care has been identified and researched. These approaches include physical therapy, chiropractic care, acupuncture, cognitive behavioral therapy (CBT), mind-body wellness, tai chi, qigong, mindful breathing, meditation, and guided imagery to name a few. The effectiveness of these interventions within the general population has been extensively researched (Altmaier, Lehmann, Russell, Weinstein, & Kao, 1992; Burns, Glenn, Bruehl, Harden, & Lofland, 2003; Caudill, Schnable, Zuttermeister, Benson, & Friedman, 1991; Glenn & Burns, 2003; Kabat-Zinn, 1982; Cook, Stegner, & Ellingson, 2010). The findings are useful, not only for medical providers, but for patients who live with chronic pain as well.

In a meta-analysis of 65 studies of approaches to chronic pain, authors Flor, Fydrich, and Turk (1992) postulated that patients participating in multidisciplinary treatment programs were found to have improvements in their pain and mood as well as positive behavioral outcomes such as ability to return to employment and lessened use of health care. In a similar meta-analysis that focused on cost effectiveness, researchers found multidisciplinary interventions for patients with chronic pain were as clinically effective as pharmacological, medical, and surgical interventions. The same analysis found multidisciplinary treatment programs were more effective at reducing healthcare consumptions and increasing functional activities among chronic pain patients (Turk & Burwinkle, 2005). Following a two-week multidisciplinary treatment program, chronic pain patients in another study were found to have a 59% decrease ($8,469.00), one-year post-intervention, in medical costs associated with their chronic pain (Simmons, Avant, Demski, & Parisher, 1988). Patients participating in an 11-week psycho-educational group lead by a licensed psychologist were found to have a 36% decrease in total clinic visits two years post follow-up (Caudill, Schnable, Zuttermeister, Benson, & Friedman, 1991).

In addition to cost-effectiveness, multidisciplinary approaches to chronic pain have also had positive bio-psychosocial results for individual patients. Burns et al. (1998) found that increased physical activity, namely walking, as well as CBT increased the functional statuses and decreased the helplessness attitudes of 94 patients with chronic pain over a period of six months (Burns, Johnson, Mahoney, Devine, & Pawl, 1998). Utilization of a stage of change model has also been incorporated into multidisciplinary pain treatment programs. Findings include, “early treatment

progression across stages may lead to reductions in pain severity and lifestyle interference" (Glenn & Burns, 2003, p. 417). Research has also revealed that pain treatment programs that focused on stress reduction and relaxation also yielded positive results for patients with chronic pain. One such study reported 65% of participants in a stress reduction and relaxation program reported at mean reduction of 33% of the Pain Rating Index after 10 weeks (Kabat-Zinn, 1982).

A multidisciplinary approach to treat chronic pain includes utilizing a wide array of medical and mental health professionals to treat the whole person. As previously indicated, many patients with chronic pain also have co-occurring mental health issues that can be attributed to their pain and exacerbated by their pain. In order to treat physical pain, clinicians cannot ignore emotional pain that often is found among chronic pain sufferers.

Veterans and chronic pain interventions

As the largest single-payer health care agency in the U.S., the VA has taken the recommendations and findings of prevalent research seriously. In 2003, the National VA Pain Management Coordinating Committee developed the *Pain Outcomes Toolkit*, which provides all 156 VA hospitals, and 877 VA outpatient clinics with a standardized plan of care for pain management and assessment. The toolkit includes pain assessment screens and utilizes a multidisciplinary approach to managing pain (National VA Pain Outcomes Working Group; National VA Pain Management Coordinating Committee, 2003). Since the development of the *Pain Outcomes Toolkit*, research has found that pain assessments have increased across the VA from 75% to 85% and the number of Veterans who were

provided with educational information about pain and pain management increased from 35% to 62% (Cleeland et al., 2003).

A survey of 114 Veterans revealed that the primary intervention to alleviate chronic pain was prescribed medication. Unfortunately, this same study discovered that 48% of respondents felt as though their pain medication was ineffective with regard to alleviating symptoms of chronic pain (Crosby, Colestro, Ventura, & Graham, 2006). These data further support the VA's mission as well as recommendations by the American Pain Society to utilize a multidisciplinary approach to treat chronic pain (Gordon et al., 2005; Veterans Health Administration, 2009; National VA Pain Outcomes Working Group; National VA Pain Management Coordinating Committee, 2003).

Although alternative and nonpharmacologic approaches to manage chronic pain may be available, it is helpful to understand the degree to which military Veterans are open to the idea of complementary or alternative care. A recent study of participants in a randomized controlled trial of a collaborative intervention for chronic pain from five VA primary care clinics found that nearly all (99%) of Veterans sampled were willing to try one, some, or all modalities of complementary care, including chiropractic care, massage therapy, herbal medicines, and acupuncture for their chronic pain. Interestingly, the same study found that Veterans who were already using complementary care were found to have had chronic pain longer than Veterans who had not explored complementary care options (Denneson, Corson, & Dobscha, 2011). Given self-reports of pain medication as ineffective and the focus toward shifting pain management in a multidisciplinary direction, complementary and alternative approaches to chronic pain may be alluring for patients as well as health care providers.

To determine the effectiveness of a multidisciplinary approach for military Veterans with chronic pain, Donta et al. (2003) completed a study comprised of 1092 military Veterans. Findings included an 11.5% improvement in pain among the control group where no additional interventions of CBT or exercise were given and an 18.4% improvement among Veterans who were given CBT and exercise interventions (Donta, et al., 2003). Similarly, Dobscha et al. (2009) studied the effectiveness of a multidisciplinary approach which included case management, psychological intervention, pain workshops, and psycho educational seminars for Veterans with chronic pain. Results indicated improvements in pain-related disability and depression among patients who received multidisciplinary care compared to a control group of Veterans who received treatment as usual (Dobscha et al., 2009).

Lastly, OIF/OEF Veterans are presenting to VA's across the country with increased complaints of chronic pain, particularly trauma-related pain. The pain of OIF/OEF Veterans tends to be complicated by multi-organ sites, emotional issues, cognitive impairment, and increased rates of traumatic brain injury (Clark, Bair, Buckenmaier III, Gironda, & Walker, 2007).

Taking into account the number of established and recently returned military Veterans reporting chronic pain, cost-effectiveness of multidisciplinary pain management programs, dissatisfaction from primary care providers regarding access to pain specialists, increased spending on pain research within the VA, and a shift in pain treatment to include a multidisciplinary approach, further research is needed to assess the characteristics of chronic pain patients and the effectiveness of alternative approaches to pain. The following study examined a Mind-Body Pain Management program that is

offered to military Veterans receiving healthcare at a VA facility in the Midwest. The study attempted to answer the questions: What are the characteristics of Veterans who attend the Mind-Body Pain Management program? How effective is the Mind-Body Pain Management Program for military Veterans who struggle with chronic pain? These questions will attempt to be answered by using a quantitative method and the following measures: pre, post, and follow-up scores of the VA Pain Outcome Questionnaire (VA-POQ), Quality of Life Inventory (QOLI), and Pain Rating Scale.

Program Description

The eight-week Mind-Body Pain Management group is one of several groups that are facilitated utilizing a multidisciplinary approach within a primary care setting. The Mind-Body Pain Management group came to fruition as a result of multiple national VA pain management strategies and initiatives (National VA Pain Management Coordinating Committee, 2000; National VA Pain Outcomes Working Group; National VA Pain Management Coordinating Committee, 2003; The Management of Opioid Therapy for Chronic Pain Working Group, 2010; U.S. Department of Veterans Affairs, 2010; Veterans Health Administration, 2009).

The Mind-Body Pain Management group at this VA Health Care System in the Midwest originated in July of 2011 and typically hosts eight to ten Veterans per cohort. The group is co-facilitated by a psychologist and a nurse practitioner. The group meets for two hours each week for a total of eight weeks. During each session, Veterans are provided with a variety of tools including didactic education, deep breathing, CBT, biofeedback (using sensory modalities to change physiological activities), autogenics (visual relaxation techniques), biodot indicators (skin thermometers to aid in stress reduction), and mindfulness to learn about and combat their chronic pain symptoms. Additionally, nutrition and mindful eating as they relate to pain management are discussed with emphasis on keeping a food log. Various meditations are taught including forgiveness meditation, mindful breathing meditation, and guided imagery and visioning imagery meditation. Participants also use journaling and drawing as tools to treat and discuss their chronic pain symptoms. Finally, movement and dance are utilized as a means to reduce chronic pain symptoms.

During the first group session, participants are given pretest evaluations to measure their pain symptoms and effects of pain on their lives. At the eighth session, participants are given posttest evaluations to assess their pain symptoms and functional effects of pain on their daily lives. An additional ninth session is offered as a "graduates group" for all Veterans who have participated in the Mind-Body Pain Management group where follow-up scores are gathered as they relate to participant's pain and level of functioning. Veterans from earlier cohorts are invited to attend any and all graduate groups that occur.

Conceptual Framework

For many patients with chronic pain, decreases in physical, emotional, and social functioning are correlates of their physical pain conditions. Considering chronic pain is a complex experience for patients and has impacts across many facets of their lives, a bio-psychosocial conceptual framework was used for this study.

The bio-psychosocial model suggests that biological, psychological and social factors all play a significant role in human functioning especially when circumstances such as disease or illness are present (Santrock, 2007). Developed by psychiatrist, George Engel in 1977, the bio-psychosocial model came to fruition due to a need for a new medical model. Engel posited a medical model alone could not explain how the cause of an illness stems from the multi-faceted psychological, social, and biological functioning of an individual's body (Engel, 1977).

The psychological element of the bio-psychosocial model seeks to understand potential psychological causes for an illness or disease such as limited self-control, emotional chaos, and negative thinking. The social component of the model studies how different social factors such as socioeconomic status, culture, and relationships can play a role in one's health. Finally, the biological explanations for illness or disease can include hereditary traits, epidemiology, and physiological causes for illness and disease.

Based in part on social cognitive theory, the bio-psychosocial models puts forward the notion that portions of an individual's knowledge attainment can be directly related to the observation of others. The bio-psychosocial framework states that the body directly impacts the mind and, conversely, the mind influences the body (Halligan & Aylward, 2006). The bio-psychosocial model assumes the stance that the best way to

treat and alleviate symptoms of an illness and/or disease is to address all three factors: biologic, psychological, and social.

With regard to pain, Turk and Okifuji (2002) define a bio-psychosocial approach as "a dynamic and reciprocal interaction between biological, psychological, and sociocultural variables that shapes the person's response to pain" (Turk & Okifuji, 2002, p. 679). When utilizing a bio-psychosocial lens, a number of considerations are taken into account. These include patient beliefs, psychological dynamics, physiological findings, and behavioral factors.

With regard to patient beliefs, issues such as fear and avoidance, secondary gain, and self-effectiveness are taken into account. In order to assess the role patient beliefs play in the effectiveness of the Mind-Body Pain Management group, VA-Pain Outcomes Questionnaire (VA-POQ) subscale of Fear will be assessed as well as question four of the Pain Rating Scale which asks, "At what number is the pain at an acceptable level for you?" Quality of Life Inventory (QOLI) subscale of Goals & Values will be studied under the auspices of patient beliefs. Additionally, prescription pain medication and service-connected disability status will be evaluated in terms of secondary gains for program participants. Depression, emotional distress, anxiety, vitality and affect are accounted for as they pertain to psychological components of a bio-psychosocial approach.

When analyzing psychological components and their impact on the effectiveness of the Mind-Body Pain Management group, VA-POQ subscales of Vitality and Negative Affect as well as QOLI subscale of Self-Esteem will be studied. Additionally, Veterans' service in combat zones will be taken into account as the propensity of trauma exposure

may play a role in the effectiveness of the Mind-Body Pain Management group with regard to the psychological component of the bio-psychosocial approach.

Physiological findings, especially mobility, self reports of pain, and impairment of activities of daily living are discussed utilizing a bio-psychosocial lens. In order to evaluate the physiological component of the bio-psychosocial approach, VA-POQ subscales Pain, Mobility, and Activities of Daily Living will be studied as well as question one of the Pain Rating Scale which asks, "What number would you give your pain right now?" Additionally, QOLI subscale of Health will be examined. Finally, behavioral factors such as willingness to try various pain management interventions will be examined in the current study utilizing a bio-psychosocial approach. Utilizing a bio-psychosocial lens, when evaluating the effectiveness of the Mind-Body Pain Management group will allow this research project as well as group facilitators to take into consideration the many facets chronic pain affects for the individual participants in this study.

Methods

Research design

The primary objective of this study was to determine the effectiveness of an eight-week Mind-Body Pain Management program at a VA Health Care System in the Midwest. A secondary goal of this study was to investigate potential relationships between program effectiveness and Veterans' demographic information (gender, age, combat history, and service-connected disability status) as well as Veterans' access to prescribed narcotic pain medication. This study employed a quantitative design in the form of a secondary analysis of available data.

Population and sample

The study population was identified as all participants who have attended the Mind-Body Pain Management group since the group's inception in July 2011. In order to have met eligibility criteria for VA healthcare, military Veterans must have a military discharge other than dishonorable from the United States Army, Marine Corps, Air Force, Navy, or Coast Guard. Active Reservists and current National Guard members may also be eligible for VA healthcare under certain conditions. Participants in the Mind-Body Pain Management group have obtained referrals from their VA primary care providers. The eight-week closed group is completely voluntary. All Veterans who have participated in the Mind-Body Pain Management program were included in this study due to the relatively small sample of participants. The study was expected to include approximately 60 Veterans.

Protection of human participants

Many safeguards to protect participants' privacy were utilized throughout the course of this study. Considering this is a secondary data analysis, informed consent from participants was not required. Nonetheless, data obtained from participants were protected in several ways.

A research proposal was submitted to the University of St. Thomas Institutional Review Board (IRB). Any recommendations made by the IRB to this researcher were implemented in the research design in order to provide the utmost protection of human participants. Likewise, this research project also needed VA IRB approval. The research design was submitted to a local VA Research and Development Committee for consideration. This researcher implemented any recommendations the local Research and Development Committee suggested in order to increase the integrity and protection of study participants. Once the Research and Development Committee approved this research project it was forwarded to a VA IRB at a neighboring VA facility. This researcher, again, made any and all improvements in conjunction with VA IRB recommendations to protect human participants. Additionally, the VA IRB granted a waiver of informed consent and HIPAA authorization. Once final approval was granted from University of St. Thomas IRB, VA Research and Development Committee, and VA IRB, data collection commenced.

All electronic data from participants' computerized medical records and questionnaire responses were secured in an electronic folder that was accessible only to this researcher, the VA Research Coordinator, the VA Privacy Officer, and the VA Information Security Officer. Risks were minimized by de-identifying personal health information prior to entry into an electronic spreadsheet. Each participant was assigned a

number. The list of names was kept by this researcher in a database that was located on a password-protected VA server. The server was physically secured by the VA Office of Information and Technology. No personal identifying data were used for statistical analysis. Once questionnaire responses were transposed from their original paper format to an electronic spreadsheet, paper copies of survey tools were returned to the Mind-Body Pain Management group facilitator who is not a member of this research project. The Mind-Body Pain Management group facilitator kept the paper copies in a locked cabinet in a locked office.

Data collection

Data were collected from existing responses and information from a Mind-Body Pain Management program located at a VA facility in the U.S. Midwest. Participants were given assessment tools which were analyzed for this study. Data collected since the group's inception in July 2011 to January 2012 were analyzed. This data included pre, post, and follow-up scores of Quality of Life Inventory (QOLI), Pain Rating Scale, and VA Pain Outcomes Questionnaire (VA-POQ). Comparative analysis was also performed to examine relationships between Veterans' demographic information and access to prescribed narcotic pain medication and their responses to the survey tools.

Demographic information included age, gender, combat zone service, service-connected percentage, and VA prescriptions for pain medications. Combat zone service was identified by utilizing the VA's Computerized Patient Record System (CPRS) and the computer application Veterans Health Information Systems and Technology Architecture (VISTA) which identifies locations of military service. In some instances, the researcher viewed individual DD214 (military discharge) paperwork which had been

scanned into CPRS to delineate the location of where a Veteran served. Compensation and pension exams, which are facilitated by the Veterans Benefits Administration, were also viewed to determine if a Veteran served in a combat zone and documented by the examiner after review of a Veteran's C-file (military case file). With regard to participants with VA prescriptions for pain medication, CPRS was utilized to assess whether or not a pain medication was prescribed by a VA provider and documented in the Veteran's medication list. Pain medications were identified as Codeine, Darvon, Demerol, Dilaudid, Duragesic, MS Contin, Percocet, Vicodin, Lortab, Oramorph, and Tylenol #3 or #4 to remain consistent with the pain medications identified in question #26 of the VA-POQ (Clark & Gironda, Pain Outcomes Questionnaire-VA, 2006). Additional schedule II narcotics, Methadone and Morphine, were also identified.

Of importance, the VA-POQ was not available during the first two cohorts of the Mind-Body Pain Management group. Therefore the first two cohorts of the Mind-Body Pain Management group completed the Quality of Life Inventory in addition to the Pain Rating Scale. Subsequent cohorts completed the Pain Rating Scale and VA-POQ.

The Quality of Life Inventory (QOLI) is a 32-item assessment which utilizes a three-point rating scale. Questions on the inventory ask respondents to identify how satisfied they are with various parts of their life. Additionally, the survey asks how important different aspects of their lives are to their overall happiness. The Quality of Life Inventory yields an overall score and a profile of problems and strengths in 16 areas of life such as Health, Self-esteem, Work, Goals & Values (Frisch, 1994). An increased score on any of the QOLI subscales or QOLI total indicates a higher level of life satisfaction and importance for participants.

The VA-Pain Outcomes Questionnaire (VA-POQ) is a pain assessment tool that was developed in 2003 by researchers Michael Clark, Ronald Gironda, and Robert Young. They sought to develop an assessment tool that measured multiple pain treatment outcomes as well as monitored patient's satisfaction with pain treatment interventions. The assessment consists of 25 items. The first 24 items utilize an 11-point scale. One question asks participants to answer yes or no with regard to current daily narcotic pain medication use. Respondents who indicate that they take narcotic pain medication are asked to complete two more survey questions pertaining to length of daily narcotic pain medication use (years/months) as well as effectiveness of narcotic pain medication as it relates to their chronic pain utilizing an 11-point scale. Responses to the VA-POQ fall into six categories: Pain, Mobility, Activities of Daily Living (ADL), Vitality, Negative Affect, and Fear (Clark & Gironda, Pain Outcomes Questionnaire-VA, 2006). A decrease in score indicates an improvement in pain related subscales. The assessment has yielded strong reliability and validity among two samples of 957 subjects who utilized the tool (Clark, Gironda, & Young, 2003).

Finally, the Pain Rating Scale is an 11-point scale for patients to utilize when self-reporting their pain. Zero indicates no pain symptoms at all, one through three indicates mild pain symptoms that are described as nagging annoying, and interfering with life activities. Responses of four through six illustrate moderate pain symptoms described at interfering significantly with life activities and seven through ten express severe pain symptoms described as disabling-unable to perform life activities with ten being the worst imaginable pain (McCaffery, 1989). The Pain Rating Scale asks participants to self-rate their pain by answering the following questions: 1) What number would you

give your pain right now? 2) What number would you give your pain when it is the worst that it gets? 3) What number would you give your pain when it is the best that it gets? 4) At what number is the pain at an acceptable level for you? For the purposes of this study, question one and question four were analyzed.

Data analysis

A comparative analysis of pre, post, follow-up scores of all three survey instruments (QOLI, Pain Rating Scale, and VA-POQ) was conducted to determine the effectiveness of the Mind-Body Pain Management program. Particularly, effectiveness of the Mind-Body Pain Management group was assessed by conducting paired t-tests of Pain Rating Scale questions one and four, at pre, post, and follow-up. Similarly, paired t-tests were also utilized to evaluate the effectiveness of the Mind-Body Pain Management Group with regard to QOLI areas: Health, Self-esteem, and Goals & Values by looking for relationships among pre and post scores. Finally, for cohorts who were given the VA-POQ assessment tool, paired t-tests were utilized to assess statistical significance, pre, post, and follow-up, among all six themes (Pain, Mobility, ADL, Vitality, Negative Affect, and Fear) to determine effectiveness. Paired t-tests were run via the VA's statistical software package, *IBM SPSS Statistics* (Version 21.0; IBM/SPSS, 2012). In addition to paired t-tests, the pre, post, and follow-up means to all survey tools were compared.

Comparative analyses were also conducted to examine relationships between Veterans' demographic and access to prescribed narcotic pain medication and their responses to the survey tools. Using SPSS, statistical tests were utilized to determine the effectiveness of the Mind-Body Pain Management program as well as how Veterans'

attributes correlate with their success rates. This was completed by comparing mean pre, post, and follow-up scores with participants' demographic information. Mean scores of males and females were analyzed as well as mean scores based on age. The median age of participants was 59 years old therefore mean scores of participants aged 26-58 made up one group and were compared to participants aged 59-78. Likewise, participants were divided into two groups based on service-connected status. Group one was comprised of Veterans who were non-service connected to 70% service-connected (n=28) and group two was comprised of Veterans who were 80% to 100% service-connected (n=33) as this seemed to be the most meaningful split with nearly equal number of Veterans in each group. Veterans who served in a combat zone were identified versus Veterans who did not serve in a combat zone. Likewise, Veterans who were currently prescribed pain medications were distinguished from Veterans who were not currently prescribed pain medication.

Descriptive statistics were primarily analyzed utilizing frequency distributions. Inferential statistical analysis consisted of paired t-tests, independent sample t-tests, and means comparisons to evaluate the effectiveness of the Mind-Body Pain Management group. Additionally, correlations were used to identify relationships between demographic data and test scores. The following demographic information was analyzed in conjunction with survey tools: age, gender, combat status, service-connected disability rating, and access to prescribed narcotic pain medication.

Strengths and limitations

This study posed a variety of strengths that provided substance to the project. The eight-week Mind-Body Pain Management group is one of several groups within the VA

Health Care System that are facilitated utilizing a multidisciplinary approach in a primary care setting. However, since the group's inception in July 2011, little data analysis had been completed to assess the overall effectiveness of the group or to compare Veterans' attributes with the effectiveness of the program. Considering the prevalence of pain symptoms in Veterans of all generations and the increased amount of pain complaints from recently returning Veterans, it would be valuable for the VA Health Care System to determine if the Mind-Body Pain Management group is effective and to explore potential relationships among individual characteristics of participants with regard to the effectiveness of the program in order to make appropriate recommendations for the group. One particular strength of the study was the availability of follow-up data. Typical program evaluations have limited follow-up data available. Additionally, given the broad array of pain symptoms and demographic information, the availability of Veteran's attributes via CPRS and VISTA to look for correlations was certainly strength. The hope is that results from this study, particularly relationships between participants attributes and the effectiveness of the program, will give program developers and facilitators information to make beneficial changes to the group.

One of the largest limitations of the current study was the lack of a control group. This certainly detracted from the validity of the project and limited the research approach. Additionally, the sample is one of convenience given the small number of participants who have participated in the Mind-Body Pain Management program. It would be interesting to survey all Veterans who have experienced chronic pain and utilized any number of treatment interventions. Unfortunately, the depth and breadth of such a

project would be quite consuming and was beyond the nine month scope of this study. It is an option worth considering for a future replication of this pilot.

Results

Data analysis sample

As previously noted, the study population was identified as all participants who have attended the Mind-Body Pain Management group since the group's inception in July 2011. The study sample consisted of 61 Veterans who had attended the Mind-Body Pain Management group. Of the 61 Veterans who attended the group, all 61 completed pretest survey tools and 44 provided posttest scores. Follow-up scores were furnished by 18 Veterans. Veterans are invited to attend all subsequent graduate groups. In some instances, a single Veteran may have attended multiple graduate groups and completed survey instruments at each graduate group. In these cases, the mean scores were used to identify one follow-up score per Veteran.

Table 1
Demographic Characteristics of the Mind-Body Pain Management Group Sample

	Mean	SD	Minimum	Maximum	
Age	55.84	10.82	26	78	
	Frequency	Percent			
Gender					
Male	50	82			
Female	11	18			
Combat Zone					
Yes	25	41			
No	36	59			
Pain Medications					
Yes	35	57.4			
No	26	42.6			
Service-connected %	Frequency	Percent		Frequency	Percent
Non-Service Connected (NSC)	4	6.6	*50%*	2	3.3
0%	3	4.9	*60%*	1	1.6
10%	5	8.2	*70%*	5	8.2
20%	4	6.6	*80%*	8	13.1
30%	1	1.6	*90%*	9	14.8
40%	3	4.9	*100%*	16	26.2

Demographic characteristics of the sample are presented in Table 1. These characteristics include age, gender, combat zone service, service-connected percentage, and VA prescription for pain medications. The mean age of participants was 55.84 years (SD=10.82). With regard to gender, the minority of participants were made up of female Veterans (18%). Interestingly, this particular VA Health Care System in the Midwest is comprised of 95% male Veterans compared to 5% female Veterans (2012 Annual Report). The study sample of females is higher than the population from which it is comprised. Forty-one percent of study participants served in a combat zone. Of the 61 participants, 57.4% were prescribed one or more of the identified pain medications by a VA provider. Finally, it was found that the majority of participants in the Mind-Body Pain Management group were highly service-connected (>70%). One consideration for this finding is that the Mind-Body Pain Management group meets during the work week and during business hours. It is not uncommon for highly service-connected Veterans to not be employed as the monetary stipend they receive from the government for their service-connection can cover their costs of living.

Pre, post, follow-up score analysis

Table 2
Means of pre, post, and follow-up scores of Pain Rating Scale

		N	Mean	SD
Question 1	pre	61	5.69	1.88
	post	44	5.60	2.11
	follow-up	19	5.43	2.12
Question 4	pre	60	3.99	1.78
	post	44	3.94	1.49
	follow-up	19	4.04	1.29

Table two identifies the mean scores for the Pain Rating Scale question one and question four. Question one of the Pain Rating Scale asks, "What number would you give your pain right now (0-10)?" The mean pre score was 5.69 (SD=1.88). The post score mean was found to be 5.60 (SD=2.11) and the mean follow-up score was 5.43 (SD=2.12). A decrease in score indicates a decrease in self-reported level of pain. Question four of the Pain Rating Scale asks participants, "At what number is the pain at an acceptable level for you (0-10)?" The mean pre score was 3.99 (SD=1.78), post score was 3.94 (SD=1.49), follow-up score was 4.04 (SD=1.29).

Table 3
Means of pre and post scores of Quality of Life Inventory-QOLI (with subscales)

		N	Mean	SD
Raw score	pre	14	.49	2.11
	post	10	1.21	1.99
Health	pre	14	-1.50	3.74
	post	10	-1.70	3.68
Self-esteem	pre	14	-.86	3.48
	post	10	1.00	3.27
Goals & Values	pre	14	.57	3.63
	post	10	1.40	2.63

Table three identifies the mean scores for the QOLI including subscales. The mean pretest raw score of the QOLI was .49 (SD=2.11) and posttest mean score of 1.21 (SD=1.99). An increase in mean score indicates a higher level of life satisfaction and importance for participants. Table three also illustrates the mean scores and standard deviations for three subscales of the QOLI (Health, Self-esteem, and Goals & Values). It should be noted that no follow-up scores were available for the QOLI as all graduate groups were asked to complete the Pain Rating Scale and VA-POQ, not the QOLI.

Table 4
Means of pre, post, and follow-up scores of Pain Outcomes Questionnaire (VA-POQ) including subscales

		N	Mean	SD
Total	pre	46	92.75	25.92
	post	33	94.59	30.59
	follow-up	18	91.37	30.59
Pain	pre	47	6.39	1.46
	post	33	6.24	1.77
	follow-up	19	6.26	1.78
Mobility	pre	47	24.49	8.47
	post	33	23.73	9.28
	follow-up	19	23.71	9.15
ADL	pre	47	12.86	10.24
	post	33	15.55	11.09
	follow-up	19	13.23	9.90
Vitality	pre	47	17.52	5.08
	post	33	18.18	4.65
	follow-up	19	18.53	5.95
NA	pre	46	26.76	9.92
	post	33	25.32	10.80
	follow-up	18	26.59	11.97
Fear	pre	46	10.99	3.77
	post	33	11.82	3.55
	follow-up	18	11.89	2.87

ADL=activities of daily living, NA=negative affect

Table four illustrates the mean scores for the VA-POQ and its subscales. The mean pretest total score of the VA-POQ was 92.75 (SD=25.92) and posttest mean was 94.59 (SD=30.59). The mean follow-up total score of the VA-POQ was 91.37 (SD=30.59). VA-POQ subscales regarding Pain, Mobility, ADL, Vitality, Negative Affect, and Fear are also illustrated in table four. A decrease in score indicates an improvement in the pain related subscale. Overall improvements were found from pretest to follow-up in the areas of Pain, Mobility, and Negative Affect. A decline of functioning in the areas of ADL, Vitality, and Fear were found.

Paired T-Tests

Table five shows the results of paired-t tests comparing the mean scores of Pain Rating Scale question one which states, "What number would you give your pain right now (0-10)?" A score of zero represents no pain at all and a score of ten indicates severe pain. The first pair is comprised of the pretest and posttest scores of the Pain Rating Scale question one. The second pair consists of the pretest and follow-up mean scores of question one of the Pain Rating Scale. Finally, the third pair includes the posttest and

follow-up mean scores of the Pain Rating Scale question one. The p-values for all three pairs were greater than .05 indicating no statistically significant difference between participants' scores.

Table 5
Pre, post, and follow-up scores of Pain Rating Scale Question One paired t-tests

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	pre-post	.03	1.55	.23	-.438	.51	.15	43	.89
Pair 2	pre-follow-up	.18	2.26	.52	-.91	1.27	.35	18	.73
Pair 3	post-follow-up	-.56	1.45	.35	-1.31	.179	-1.61	16	.13

Table six illustrates the results of paired-t tests comparing the mean scores of Pain Rating Scale question four which states, "At what number is the pain at an acceptable level for you (0-10)?" A score of zero represents no pain at all and a score of ten indicates severe pain. The first pair is comprised of the pretest and posttest scores of the Pain Rating Scale question four. The second pair consists of the pretest and follow-up mean scores of question four of the Pain Rating Scale. Finally, the third pair includes the posttest and follow-up mean scores of the Pain Rating Scale question four. The p-values for all three pairs were greater than .05 indicating no statistically significant difference between participant's scores.

Table 6
Pre, post, and follow-up scores of Pain Rating Scale Question Four paired t-tests

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	pre-post	.08	1.56	.24	-.40	.56	.34	42	.73
Pair 2	pre-follow-up	.46	1.79	.41	-.41	1.32	1.11	18	.28
Pair 3	post-follow-up	-.11	.94	.23	-.59	.38	-.47	16	.65

Table seven illustrates the results of paired-t tests comparing the mean scores of QOLI and its subscales (Health, Self-esteem, and Goals & Values). The first pair is comprised of the pretest and posttest scores of subscale item Health. The second pair consists of the pretest and posttest scores of subscale item Self-Esteem. The third pair includes the pretest and posttest scores of subscale item Goals & Values. Finally, the fourth pair identifies the pretest and posttest raw scores which is a summation of all 16 areas of life that are examined in the QOLI.

Table 7
Pre and post scores QOLI (with subscales) paired t-test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Health pre-post	.40	4.45	1.41	-2.78	3.58	.28	9	.78
Pair 2	Self Esteem pre-post	-1.40	2.27	.72	-3.02	.22	-1.95	9	.08
Pair 3	Goals & Values pre-post	-.70	2.06	.65	-2.17	.77	-1.08	9	.31
Pair 4	Raw score pre-post	-.35	.75	.24	-.89	.19	-1.47	9	.18

For the purposes of this study the paired t-tests of Health, Self-Esteem, and Goals & Values were assessed as they are more closely related to the VA-POQ subscales that are analyzed later in this section. The p-values for all four pairs were greater than .05 indicating no statistically significant difference between participant's scores. It should be noted the paired t-test for QOLI subscale Self-Esteem approached statistical significance with a p-value of .08.

Table eight illustrates the results of paired-t tests comparing the mean scores of VA-POQ and all of its subscales (Pain, Mobility, ADL, Vitality, Negative Affect, and Fear). The first pair in each set is comprised of the pretest and posttest scores. The second pair in each set consists of the pretest and follow-up mean scores. The third pair in each set includes the posttest and follow-up mean scores. The p-values for all pairs were greater than .05 indicating no statistically significant difference between participant's pre, post, and follow-up scores, although pair one (pre to post) of subscale Negative Affect yielded a p-value of .06 which approached statistical significance.

Table 8

Pre, post, and follow-up (mean) scores of VA-POQ (with subscales) paired t-tests

			Paired Differences							
						95% Confidence Interval of the Difference				
			Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pain	**Pair 1**	pre-post	.06	1.57	.27	-.49	.62	.22	32	.83
	Pair 2	pre-follow-up	-.60	1.31	.41	-1.54	.34	-1.45	9	.18
	Pair 3	post-follow-up	-.25	1.25	.40	-1.15	.65	-.63	9	.54
Mobility	**Pair 1**	pre-post	.39	5.10	.89	-1.41	2.20	.44	32	.66
	Pair 2	pre-follow-up	2.33	8.35	2.64	-8.30	3.64	-.88	9	.40
	Pair 3	post-follow-up	2.03	6.49	2.05	-6.67	2.61	-.99	9	.35
ADL	**Pair 1**	pre-post	-1.26	4.85	.84	-2.98	.46	-1.49	32	.15
	Pair 2	pre-follow-up	1.43	5.74	1.81	-2.67	5.53	.79	9	.45
	Pair 3	post-follow-up	-.17	5.27	1.67	-3.94	3.60	-.10	9	.92
Vitality	**Pair 1**	pre-post	-.68	4.68	.81	-2.34	.98	-.84	32	.41
	Pair 2	pre-follow-up	-1.07	4.79	1.51	-4.49	2.35	-.71	9	.50
	Pair 3	post-follow-up	-2.70	4.78	1.51	-3.69	3.15	-.18	9	.86
NA	**Pair 1**	pre-post	2.48	7.06	1.25	-.06	5.03	1.99	31	.06
	Pair 2	pre-follow-up	1.58	12.21	3.86	-7.15	10.31	.41	9	.69
	Pair 3	post-follow-up	-4.82	9.91	3.13	-11.91	2.27	-1.54	9	.16
Fear	**Pair 1**	pre-post	-.78	4.26	.75	-2.32	.76	-1.04	31	.31
	Pair 2	pre-follow-up	.38	2.60	.82	-1.48	2.24	.46	9	.66
	Pair 3	post-follow-up	-.22	2.88	.91	-2.28	1.84	-.24	9	.82
Total	**Pair 1**	pre-post	.02	17.45	3.08	-6.28	6.31	.01	31	1.00
	Pair 2	pre-follow-up	.00	26.82	8.48	-19.19	19.19	.00	9	1.00
	Pair 3	post-follow-up	-7.50	22.08	6.98	-23.29	8.29	-1.07	9	.31

ADL=activities of daily living, NA=negative affect

Comparing Means

Table nine illustrates responses from Question One from the Pain Rating Scale with regard to sample demographics. Question one asks participants, "What number would you give your pain right now? Participants utilized an 11-point scale to self-report their pain. A score of zero indicates no pain symptoms at all and a score of ten indicates the worst imaginable pain possible.

Table 9

Comparing pre, post, and follow-up (mean) scores of Pain Rating Scale Question One with regard to sample demographics

		Pre Score *n*	Mean Pre Score	Post Score *n*	Mean Post Score	Pre-Post % Change	F/u Score *n*	Mean f/u Score	Post-f/u % Change	Pre-f/u % Change
Gender	Male	50	5.56 (1.97)	38	5.71 (2.00)	2.70	12	5.61 (1.49)	-1.75	0.90
	Female	11	6.27 (1.35)	6	4.92 (2.80)	-21.53	7	5.11 (3.04)	3.86	-18.50
Age	26-58	32	5.73 (1.76)	23	5.67 (2.05)	-1.05	8	5.50 (1.41)	-3.00	-4.01
	59-78	29	5.64 (2.04)	21	5.52 (2.21)	-2.13	11	5.37 (2.59)	-2.72	-4.79
SC %	NSC-70%	28	5.75 (2.03)	18	5.50 (2.48)	-4.35	7	4.44 (2.36)	-19.27	-22.78
	80%-100%	33	5.64 (1.78)	26	5.67 (1.85)	0.53	12	6.00 (1.83)	5.82	6.38
Combat Zone	YES	25	5.04 (2.00)	15	5.23 (2.11)	3.77	7	5.04 (1.63)	-3.63	0.00
	NO	36	6.14 (1.67)	29	5.79 (2.12)	-5.70	12	5.65 (2.40)	-2.42	-7.98
Rx'd Pain Meds	YES	35	6.19 (1.61)	26	5.96 (2.01)	-3.76	10	6.15 (2.44)	3.19	-0.65
	NO	26	5.02 (2.04)	18	5.08 (2.18)	1.20	9	4.62 (1.44)	-9.06	-7.97
Overall Mean		61	5.69 (1.88)	44	5.60 (2.11)	-1.58	19	5.43 (2.12)	-3.04	-4.57

While comparing mean scores of demographic groups, it should be noted that female participants decreased their mean pre to post scores by 21.53%, thus indicating an improvement in pain symptoms. Additionally, female participants mean pre score was 6.27(SD=1.35) and follow-up mean score was 5.11(SD=3.04), an 18.5% improvement in scores. In order to analyze these findings further, independent samples t-tests were

utilized to study the significance of gender with pre to follow-up scores. The findings revealed $t(17)=1.52$, $p \geq .05$ and no statistical significance, though it approached it.

Likewise, participants with different service-connection statuses produced varying means. Pretest means for participants who were non-service connected to 70% service-connected averaged 5.75 (SD=2.03) whereas follow-up mean scores were 4.44 (SD=2.36). This is a 22.78% change and improvement in scores. In order to assess these scores further and look for relationships, correlations were used to evaluate the notion that differences in mean scores (pre to follow-up) for question one of the Pain Rating Scale became higher as the service-connected percentages increased. The correlation between service-connected percentages and differences in pre to follow-up mean found a Pearson correlation of .39 and a p-value of .10. It should be noted when running a correlation of service-connected percentage and differences in mean scores pre to post of question one of the Pain Rating Scale a strong positive Pearson correlation was found ($r=.60$, $p < .05$) and a p-value of .01.

Table ten compares the pre, post, and follow-up scores of question four of the pain rating scale where demographic information is taken into account. Question four asks participants to utilize an 11-point scale to answer the question "At what number is the pain at an acceptable level for you?" Similar to question one, female participants had an average decrease in mean pre to post scores from 4.59 (SD=1.59) to 4.0 (SD=1.26) which was a 12.85% change. Overall, female participants reported a decrease in mean scores (pre to follow-up) by 14.38%. With regard to participants who were prescribed pain medication, those who were prescribed pain medication had a pre score mean of 3.88 (SD=1.84) and a follow-up mean score of 4.4 (SD=1.61) this was a 13.40% increase

in score, indicating a decrease in acceptable levels of pain. Conversely, participants who were not prescribed pain medications had a 12.08% change in means from pre score to follow-up score indicating a higher acceptable level of pain.

Table 10

Comparing pre, post, and follow-up (mean) scores of Pain Rating Scale Question Four with regard to sample demographics

		Pre Score *n*	Mean Pre Score	Post Score *n*	Mean Post Score	Pre-Post % Change	F/u Score *n*	Mean f/u Score	Post-f/u % Change	Pre-f/u % Change
Gender	Male	49	3.86 (1.80)	68	3.93 (1.54)	1.83	12	4.11 (1.17)	4.58	6.48
	Female	11	4.59 (1.59)	6	4.00 (1.26)	-12.85	7	3.93 (1.57)	-1.75	-14.38
Age	26-58	31	3.89 (1.65)	23	3.78 (1.59)	-2.83	8	3.63 (1.10)	-3.97	-6.68
	59-78	29	4.10 (1.92)	21	4.12 (1.39)	0.49	11	4.35 (1.38)	5.58	6.10
SC %	NSC-70%	27	4.02 (1.95)	18	4.28 (1.60)	6.47	7	4.26 (1.38)	-0.47	5.97
	80%-100%	33	3.97 (1.65)	26	3.71 (1.39)	-6.55	12	3.92 (1.28)	5.66	-1.26
Combat Zone	YES	25	3.92 (1.86)	15	3.73 (.98)	-4.85	7	3.69 (.76)	-1.07	-5.87
	NO	35	4.04 (1.74)	29	4.05 (1.70)	0.25	12	4.25 (1.51)	4.94	5.20
Rx'd Pain Meds	YES	35	3.88 (1.84)	26	4.08 (1.78)	5.16	10	4.40 (1.61)	7.84	13.40
	NO	26	4.14 (1.72)	18	3.75 (.94)	-9.42	9	3.64 (.68)	-2.93	-12.08
Overall Mean			3.99 (1.78)		3.94 (1.49)	-1.25		4.04 (1.29)	2.54	1.25

The pre, post, and follow-up total mean scores of the VA-POQ are identified in table eleven and divided by demographic categories. Female participants had a decrease in mean pre to post total scores by 12.46% indicating an improvement in VA-POQ total scores. Additionally, when assessing female participants mean pre to follow-up scores, there was a 13.77% improvement in scores. It should also be noted that non-service connected to 70% service-connected Veterans had a 19.49% decrease (improvement) in VA-POQ total mean scores where the pre score mean was 93.81 (SD=28.16) and the follow-up mean score was 75.53 (SD=23.27). Conversely, Veterans with higher service-

connected rating saw a 10.45% increase (decline in overall functioning) with regard to the VA-POQ total scores.

Table 11

Comparing pre, post, and follow-up (mean) total scores of VA-POQ with regard to sample demographics

		Pre Score *n*	Mean Pre Score	Post Score *n*	Mean Post Score	Pre-Post % Change	F/u Score *n*	Mean f/u Score	Post-f/u % Change	Pre-f/u % Change
Gender	Male	40	92.31 (26.34)	29	96.09 (30.62)	4.10	11	97.02 (29.25)	0.97	5.10
	Female	6	95.67 (24.96)	4	83.75 (32.42)	-12.46	7	82.5 (32.79)	-1.49	-13.77
Age	26-58	24	97.08 (25.59)	18	95.50 (34.08)	-1.63	8	98.88 (28.37)	3.54	1.85
	59-78	22	88.02 (26.04)	15	93.50 (26.94)	6.23	10	85.37 (32.42)	-8.70	-3.01
SC %	NSC-70%	21	93.81 (28.16)	13	96.62 (34.41)	3.00	7	75.53 (23.27)	-21.83	-19.49
	80%-100%	25	91.86 (24.44)	20	93.28 (28.69)	1.55	11	101.46 (31.28)	8.77	10.45
Combat Zone	YES	19	81.47 (24.08)	10	86.65 (28.24)	6.36	6	88.62 (31.66)	2.27	8.78
	NO	27	100.69 (24.56)	23	98.04 (31.52)	-2.63	12	92.75 (31.37)	-5.40	-7.89
Rx'd Pain Meds	YES	25	101.46 (23.31)	19	105.29 (27.03)	3.78	10	104 (29.88)	-1.23	2.50
	NO	21	82.38 (25.54)	14	80.07 (29.95)	-2.80	8	75.59 (24.74)	-5.60	-8.24
Overall Mean		46	92.75 (25.92)	33	94.59 (30.59)	1.98	18	91.37 (30.59)	-3.40	-1.49

Gender

The previous table revealed a difference in VA-POQ total scores for female participants versus male participants. In order to investigate these differences further, the VA-POQ subscales were examined and assessed by gender. Table 12 is a representation of the findings.

According to the data presented in table 12, the greatest difference between percentages of change among genders from pretest to follow-up occurred with subscales ADL, Negative Affect, and Fear. To test for significance, independent samples t-tests were conducted for each of the three subscales listed above. The differences between genders for ADL, pre score mean to follow-up score mean were not significant

$t(8)=-.056$, $p > .05$. For subscale Negative Affect, the differences between male and female pre score means to follow-up score means were not significant as well $t(8)=-.264$, $p > .05$. Finally, for subscale Fear, the differences of pre score means to follow-up score means among male and female participants were also analyzed utilizing independent samples t-tests. The findings were not significant in that $t(8)=1.19$, $p > .05$.

Table 12
VA-POQ subscales with regard to gender

		Mean Pre Score	Mean Post Score	Pre-Post % Change	Mean f/u Score	Post-f/u % Change	Pre-f/u % Change
Pain	Male	6.28	6.07	-3.34	6.26	3.13	-0.32
	Female	7.17	7.50	4.60	6.26	-16.53	-12.69
	Mean	6.39	6.24	-2.35	6.26	0.32	-2.03
Mobility	Male	24.32	23.86	-1.89	24.78	3.86	1.89
	Female	25.67	22.75	-11.38	21.81	-4.13	-15.04
	Mean	24.49	23.73	-3.10	23.71	-0.08	-3.19
ADL	Male	12.72	15.90	25.00	14.58	-8.30	14.62
	Female	13.83	13.00	-6.00	10.93	-15.92	-20.97
	Mean	12.86	15.55	20.92	13.23	-14.92	2.88
Vitality	Male	17.70	18.62	5.20	19.82	6.45	11.98
	Female	16.33	15.00	-8.15	16.31	8.73	-0.12
	Mean	17.52	18.18	3.77	18.53	1.93	5.77
Negative	Male	26.45	25.36	-4.12	28.34	11.75	7.15
Affect	Female	28.83	25.00	-13.29	23.86	-4.56	-17.24
	Mean	26.76	25.32	-5.38	26.59	5.02	-0.64
Fear	Male	10.99	12.35	12.38	13.36	8.18	21.57
	Female	11.00	8.00	-27.27	9.57	19.63	-13.00
	Mean	10.99	11.82	7.55	11.89	0.59	8.19

ADL=activities of daily living, NA=negative affect

Service-Connected Percentage

Table ten revealed a difference in VA-POQ total scores for participants with varying service-connected percentages. In order to investigate these differences further, the VA-POQ subscales were examined and assessed by service-connected status. Table 13 demonstrates the findings.

Table 13
VA-POQ subscales with regard to service-connected percentage

		Mean Pre Score	Mean Post Score	Pre-Post % Change	Mean f/u Score	Post-f/u % Change	Pre-f/u % Change
Pain	NSC-70%	6.55	6.39	-2.44	5.59	-12.52	-14.66
	80%-100%	6.26	6.15	-1.76	6.65	8.13	6.23
	Mean	6.39	6.24	-2.35	6.26	0.32	-2.03
Mobility	NSC-70%	26.36	23.77	-9.83	19.83	-16.58	-24.78
	80%-100%	22.84	23.7	3.77	25.97	9.58	13.70
	Mean	24.49	23.73	-3.10	23.71	-0.08	-3.19
ADL	NSC-70%	14.14	17.08	20.79	12.00	-29.74	-15.13
	80%-100%	11.74	14.55	23.94	13.95	-4.12	18.83
	Mean	12.86	15.55	20.92	13.23	-14.92	2.88
Vitality	NSC-70%	16.55	18.46	11.54	15.01	-18.69	-9.31
	80%-100%	18.38	18.00	-2.07	20.58	14.33	11.97
	Mean	17.52	18.18	3.77	18.53	1.93	5.77
Negative Affect	NSC-70%	25.71	24.69	-3.97	18.29	-25.92	-28.86
	80%-100%	27.64	25.73	-6.97	31.88	23.90	15.34
	Mean	26.76	25.32	-5.38	26.59	5.02	-0.64
Fear	NSC-70%	10.67	12.62	18.28	11.26	-10.78	5.53
	80%-100%	11.26	11.30	0.36	12.29	8.76	9.15
	Mean	10.99	11.82	7.55	11.89	0.59	8.19

ADL=activities of daily living, NA=negative affect; NSC=non-service connected

The greatest differences in percent changes between NSC-70% service-connected Veterans and 80%-100% service-connected Veterans occurred in subscales: Mobility, ADL, and Negative Affect**.** In order to assess these scores further and look for relationships, correlations were used to evaluate the notion that the differences in mean scores (pre to follow-up) for VA-POQ subscales of Mobility, ADL, and Negative Affect became higher as service-connected percentages increased. For subscale Mobility, the correlation output revealed a Pearson correlation coefficient of r=.30 and a p-value of .40 indicating no statistically significant relationship. The same correlation was utilized for subscale ADL. The test found a Pearson correlation coefficient of r=.02 and a p-value of .97 indicating no significant relationship between service-connected percentage and pre to follow-up differences in ADL scores. Finally, correlations were utilized to evaluate relationships between service-connected rating and the Negative Affect subscale. The

correlation output revealed a Pearson correlation of r=.41 and a p-value of .24 and no statistically significant relationship.

Discussion

The primary aim of this quantitative study utilizing secondary data analysis was to better understand the effectiveness of an eight-week Mind-Body Pain Management group that is facilitated at a VA Health Care System in the Midwest. A secondary objective of this study was to investigate potential relationships between Veterans demographic information (gender, age, combat history, and service-connected disability status) as well as access to prescription narcotic pain medication with regard to the effectiveness of the Mind-Body Pain Management program.

No other studies have been conducted which evaluate the effectiveness of this particular Mind-Body Pain Management group since the group's inception in July of 2011. Therefore, it is difficult to assess the reliability of the current study. However, it may be useful to compare the current study with others which evaluated the effectiveness of non-pharmacologic approaches to treat chronic pain among Veteran samples and samples from the general population. The following discussion includes comparisons of the current study's findings to other historical studies that are similar in nature. Additionally, implications for future studies and practice are examined. Finally, strengths and limitations of the study and suggestions for social work practice are also discussed.

Overall Findings

All study participants were asked to self-report their pain utilizing the Pain Rating Scale. For the purposes of this study, responses to questions one and four of the Pain Rating Scale were examined. Question one asks participants to answer the question: What number would you give your pain right now? Question four asks participants: At what number is the pain an acceptable level for you? For both questions, zero indicates

no pain symptoms at all, one through three indicate mild pain symptoms that are described as nagging, annoying, and interfering with life activities. Responses of four through six illustrate moderate pain symptoms described at interfering significantly with life activities and seven through ten express severe pain symptoms described as disabling-unable to perform life activities with ten being the worst imaginable pain (McCaffery, 1989). For question one, the current study found an overall decrease in mean by 4.57% from pretest score (M=5.69) to follow-up score (M=5.43). Although this is certainly an improvement, it did not prove to be statistically significant. With regard to question four, the current study found an increase in mean scores by 1.25% from pretest score (M=3.99) to follow-up score (M=4.04). An increase in scores indicates a greater tolerance or acceptance of pain intensity. An increase by 1.25% from pretest to follow-up is interesting as it potentially demonstrates pain acceptance by study participants.

Like the Pain Rating Scale, the VA-POQ also saw a slight improvement in total scores. The mean pre score was 92.75, mean post score was 94.59, and mean follow-up score was 91.37, thus a 1.49% decrease (improvement) from pretest to follow-up test. This difference can be compared to a study completed by Donta et. al (2003) which evaluated the effectiveness of a multidisciplinary approach to treat 1092 Veterans with chronic pain. Donta et. al (2003) reported an 18.48% improvement in pain scores among Veterans who were provided CBT and exercise intervention (Donta et al., 2003). Participants in the Donta et al. study were given two primary treatment methods, CBT and exercise. The Mind-Body Pain Management group in this study utilized a variety of methods to manage Veterans' chronic pain symptoms. Future replications of the current study may want to consider weighting the methods the group employs and comparing

them with methods used by other studies with regard to effectiveness. Results of such a study may enable group developers and facilitators to consider what constitutes optimal structure content of a Mind-Body Pain Management group.

Subscales

To add depth and breadth to this study, VA-POQ and QOLI subscales were examined. Although the Pain Rating Scale, QOLI, and VA-POQ total scores produced little variance, there were VA-POQ and QOLI subscales that yielded interesting results. For VA-POQ, subscales Pain, Mobility, and Negative Affect all had a decrease in overall mean scores, thus indicating an improvement in these areas for study participants. Additionally, VA-POQ subscale of Negative Affect approached statistical significance with a p-value of .06 when paired t-tests were utilized. It can be postulated that participants' affect was positively impacted due to interventions such as CBT, meditation, and journaling that the Mind-Body Pain Management group utilizes. Subscales ADL, Vitality, and Fear all had an increase in overall mean scores indicating a decline in these areas for study participants. When examining the QOLI and its subscales, Self-Esteem approached statistical significance with a p-value of .08. Perhaps the Mind Body Pain Management group provided study participants with the opportunity to connect with others as well as develop a sense of mastery with regards to effectively managing their chronic pain symptoms.

A similar study, Burns et al. (1998) found that increased walking, as well as CBT improved the functional statuses and decreased the helplessness attitudes of 94 patients with chronic pain over a time period of six months (Burns, Johnson, Mahoney, Devine, & Pawl, 1998). Similarly, a study by Dobscha et. al reported improvements in pain-related

disability and depression among patients who received multidisciplinary care compared to a control group of Veterans who received treatment as usual (Dobscha et al., 2009). This is somewhat reflected in the current study where Veterans reported scores which expressed greater mobility and lessened negative affect.

Demographics and effectiveness

To analyze the secondary objective of this research project, the effectiveness of the Mind-Body Pain Management group was studied in relation to participants' demographic information, namely gender, age, service-connected percentage, combat zone service, and access to pain medication prescriptions. When studying mean responses to Pain Rating Scale question one, female participants had an 18.5% improvement in mean scores compared to males who had a .9% decline in scores. It is difficult to ascertain this variance between genders, however, one can argue that the small number of female participants (n=11) in the group may have contributed to the higher percentage of improvement. Additionally, both age subgroups, 26-58 years old and 59-78 years old, saw an improvement in pain scores.

Veterans who were non-service connected to 70% service-connected improved their self-reported pain scores by 22.78% pretest to follow-up mean. Veterans who were 80% to 100% service-connected reported a 6.38% deterioration in their self-reported pain scores. One potential explanation for this variance may be the notion of secondary gain that highly service-connected Veterans may obtain by continuing with the status quo. Some Veterans may believe that if their pain symptoms improve, their service-connected rating may be reduced and they will receive a smaller monetary stipend every month for their service-connected disability. This is purely speculation as the Veterans in this

sample were not interviewed nor were requested to provide any information as to why they self-reported their scores as they did. Future replications of this study may want to consider the role in which the source of Veterans' service-connected disability may play and the effectiveness of the Mind-Body Pain Management group. For example, do Veterans with service-connected ankle injuries fair better or worse than Veterans with service-connected back injuries? Or, do Veterans with service-connected PTSD report better or worse scores over the duration of the Mind-Body Pain Management group than participants who are not service-connected for PTSD? Identifying the source of Veterans' service-connected disabilities may yield interesting results and provide group developers and facilitators information to make appropriate changes to the Mind-Body Pain Management program.

Veterans who served in a combat zone reported, on average, no change in their pretest scores and follow-up mean scores. Veterans who did not serve in a combat zone reported a 7.98% improvement when answering question one of the Pain Rating Scale. Separate studies by Lew et. al (2009) and Gibson (2012) found that chronic pain can often be complicated and exacerbated by symptoms of PTSD and/or trauma related pain. It is important to consider the findings of the current study in relation to Veterans' service in combat zones. Typically, Veterans who serve in a combat zone are exposed to traumatic events and experiences which may culminate later in the form of PTSD. When chronic pain is combined with PTSD or other trauma-related disorders it can be difficult to manage. The current study supports the work of both Lew and Gibson by illustrating that Veterans who did not serve in a combat zone were more likely to report improvement in their pain scores on the Pain Rating Scale.

Finally, prescription pain medication had no bearing on mean scores as both groups had improvements, although Veterans who were not prescribed pain medications saw greater improvement from pretest to follow-up mean scores. Similar to highly service-connected Veterans, secondary gains could be a potential explanation for this variance as well. It can be postulated that Veterans in the sample may be ambivalent about improving their pain symptoms for fear that they will not be prescribed narcotic pain medication. Pain medications have been found to be addictive and can often provide Veterans with a sense of security in case their pain becomes unbearable. Additionally, it is worth consideration that prescription pain medications may have potentially dampened or dulled participants' ability to identify the full potential and effectiveness of interventions the Mind-Body Pain Management group employed.

Question four of the pain rating scale was selected to evaluate the perception of pain acceptability among study participants. As Monsivais and McNeill (2007) point out in their study, there is no cure for chronic pain. Patients in Western society often struggle with the idea that their pain will be managed and not cured (Monsivais & McNeill, 2007). The current study's inclusion of question four was to assess if participants' expectations and acceptance of pain had changed throughout the course of the eight week Mind-Body Pain Management group. Most notably, male participants had an increase in their pain acceptance scores by 6.48% compared to female participants who reported a decrease in mean pain acceptance scores by 14.38%. Although men did not improve their pain scores as indicated by question one of the Pain Rating Scale, their expectation of the level of tolerable pain seemed to increase. Conversely, female participants had improved pain scores as indicated by question one, however, their expectation of the level of tolerable

pain declined. Perhaps the Mind-Body group led female participants to consider a life in which chronic pain was not so prevalent and this attributed to female participants' belief that they could not go back to a life that included an increase in an acceptable level of chronic pain.

Also noteworthy, participants who were prescribed narcotic pain medication reported an increase (13.40%) in their pain acceptance scores however participants who were not prescribed narcotic pain medications reported a decrease (12.08%) in pain acceptance scores. The tolerance of an acceptable level of pain seemed to decrease for participants who were not prescribed pain medications. Similar to female participants, perhaps Veterans who were not prescribed pain medications became very good an managing their pain throughout the eight weeks of the Mind-Body Pain Management group and did not want to consider a life that included intense chronic pain.

When comparing means of the VA-POQ total scores, it was clear that the greatest discrepancies occurred among gender and service-connected percentage statuses. When looking at VA-POQ subscales and gender, female participants reported greater improvements in all areas (Pain, Mobility, ADL, Vitality, Negative Affect, and Fear). Additionally, male participants reported improvement only in the area of Pain. It can be speculated that males may have been more focused on the area of pain and less attentive to other areas such as affect, vitality, etc. when participating in the Mind-Body Pain Management group. Males reported increased (worse) scores from pretest to follow-up in all other subscales. With regard to service-connected percentage, means were compared for two groups 1) non-service connected to 70% service-connected and 2) 80% service-connected to 100% service-connected. Additionally, correlations were performed

to see if there was a positive correlation among service-connected percentage and survey scores. Correlations yielded no statistically significant output with regard to service-connected status and VA-POQ subscale (Mobility, ADL, and Negative Affect) scores. When looking at VA-POQ subscales and service-connected percentage, participants who were non-service connected to 70% service-connected reported greater improvements for all of the subscales. Participants who were 80% service-connected to 100% service-connected reported increased (worse) scores pretest to follow-up in all subscales. The same explanation of secondary gains could be used for these findings as it was used for the findings related to question one of the Pain Rating Scale and service-connected status.

Implications for future practice

Given the results of this study as well as the preceding discussion regarding demographic information, it may be beneficial for Mind-Body Pain Management programs that are utilized at VA Health Care Systems to consider the impact one's service-connected status has on their motivation to improve their chronic pain. The notion of secondary gain, especially in the form of a monthly monetary compensation check appears to be a factor with regard to the effectiveness of a Mind-Body Pain Management program for military Veterans. Although it is uncommon, the Veterans Benefit Administration does eliminate or lessen the monthly compensation for service-connected disabilities if the condition improves over time. Perhaps this was a fear for some of the participants who were highly service-connected. It should be noted, however, that not all of the Veterans in the sample who were service-connected were service-connected for a chronic pain issue. Service-connected conditions ranged from PTSD, anxiety, tinnitus, diabetes, ischemic heart disease, and everything in between.

Perhaps the label of being "service-connected disabled" is enough to influence participants' self-efficacy and motivation to improve their chronic pain symptoms. Although highly service-connected participants did not self-report an improvement in scores, it would be interesting to find out if participants' family and friends noticed a change in Veterans pain related behaviors.

Across many of the VA-POQ subscales as well as the Pain Rating Scale questions, there appeared to be negative differences from posttest to follow-up test scores. To clarify, participants saw greater improvements between pretest to posttest than they did from pretest to follow-up test. Perhaps the graduates group needs to meet at earlier intervals than after the completion of each eight-week cohort. Additionally, many of the relevant studies utilized interventions that lasted beyond the eight-week time frame of the Mind-Body Pain Management group that was studied for this project (Burns, Glenn, Bruehl, Harden, & Lofland, 2003; Burns, Johnson, Mahoney, Devine, & Prawl, 1998; Caudill, Schnable, Zuttermeister, Benson, & Friedman, 1991; Dobscha, et al., 2009; Glenn & Burns, 2003; Kabat-Zinn, 1982). Program administrators and facilitators may consider extending the time frame of the Mind-Body Pain Management group beyond eight weeks. Future studies of the Mind-Body Pain Management group may want to consider including a qualitative component, as it is difficult to capture all of the ways in which participants in the group felt as though the group was effective or ineffective with a quantitative analysis alone.

Finally, there appeared to be relevant differences between female and male participants. Perhaps greater improvements could be made for both genders if Veterans were given the option of participating in a Mind-Body group that was gender specific.

Male Veterans may feel more comfortable with some components of the program (i.e. meditation, movement, and dance) if it was geared more toward a masculine perspective. Likewise, female Veterans may benefit even more from engaging in a group that focuses on female specific issues, activities, and strengths.

Strengths and Limitations

By and large, the greatest limitation of the current study is the lack of a control group. It was found that none of the paired t-tests yielded significant results. This in and of itself is significant. Although there was no significant improvement in scores, there was also no significant decline in scores either. The ability to compare this finding to a control group that was not given any intervention would have been beneficial. Since the implementation of *Pain as the 5th Vital Sign* in the VA Health Care System, it is common in VA primary care settings to ask Veterans to rate their pain utilizing the Pain Rating Scale that was used in the current study (National VA Pain Management Coordinating Committee, 2000). Future studies could utilize the data from primary care settings and compare it with scores reported by Mind-Body Pain Management group participants Additionally, the small sample (n=61) certainly was a limitation as well especially considering 44 participants completed the eight week program and provided post score data and 19 participants provided follow-up data. Although the availability of follow-up data was small, it was available and was a strength of the study. Likewise, all of the demographic information was available to this researcher via CPRS and was easily accessible. Finally, the fact that this study was an analysis of secondary data was a strength considering there was minimal room for influence or bias by the researcher or study participants in terms of an expectancy effect.

Suggestions for social work practice

The current study found overall improvements in the areas of Pain, Mobility, and Negative Affect. There is still room for enhancement in the areas of ADL, Vitality, and Fear. Many social workers are skilled in completing functional assessments for their clients. These functional assessments include areas such as cleaning, cooking, bathing, shopping, budgeting, etc., all of which fall under the subscale of ADLs. Likewise, social workers routinely work with clients in areas related to energy, strength, and endurance which are congruent with vitality. In many ways, social workers have utilized stage of change models to promote and support vitality among their clients. Finally, social workers have the ability to address fear, particularly pain-related fear with their clients through CBT, cognitive processing therapy, and mindfulness among others. In short, social workers possess the skills and abilities needed for this Mind-Body Pain Management program as well as others across the country. It would be beneficial for social workers, particularly in health care settings, to collaborate with medical and mental health professionals to employ best practices and formulate pain management programs that utilize a multidisciplinary approach.

Finally, social workers often utilize an integrative, bio-psychosocial perspective when working with clients. This work and perspective allows social workers to assess the client as a whole person. The bio-psychosocial model allows social workers to assess the impacts chronic pain has on a client's psychological, social, and biologic functioning. In some instances, there may be a psychological cause for a client's pain or exacerbation of pain. Particularly, combat Veterans may have been diagnosed with PTSD or other trauma-related illnesses that may increase their physical pain symptoms. Social workers

can assist clients with recognizing and recovering from the psychological and emotional causes of chronic physical pain. With regard to social causes that contribute to client's physical pain, social workers may recognize that socioeconomic status, culture, and relationships may be playing a role in the cause or exacerbation of chronic physical pain in their clients. Social workers can assist clients with finding healthy ways of life that may improve their physical health and well-being. Finally, when addressing the biologic component of a client's pain, social workers can work within multidisciplinary groups to report what they have witnessed regarding their client and assist medical professionals in assessing hereditary, epidemiologic, and physiological causes for a client's pain. When working with clients with chronic pain it is imperative, as the current study suggests, to assess all aspects of one's life in order to facilitate a meaningful chronic pain intervention.

Conclusion

Unfortunately for some, chronic pain is a fact of life. Approximately 22% of the worldwide population (Gureje, Von Korf, Simon, & Gater, 1998) reported chronic pain. This percentage is higher (30%) for residents of the United States (Johannes, Le, Zhou, Johnston, & Dworkin, 2010) and even higher (35%) for military Veterans (Crosby, Colestro, Ventura, & Graham, 2006). With the growing number of returning combat Veterans as well as an aging population of Vietnam era Veterans who may be developing chronic pain symptoms it would be beneficial for the VA Health Care System to identify effective strategies and interventions to treat chronic pain.

Additionally, the cost-effectiveness of multidisciplinary pain management programs and increased spending on pain research within the VA promotes a shift in pain treatment to include a multidisciplinary approach and expanding its existing Mind-Body Pain Management program. The Mind-Body Pain Management program evaluated in this study enables medical and mental health professionals to treat the whole person. As the current study illustrates, many patients with chronic pain also have co-occurring issues that impair their functional and emotional capabilities. In order to treat physical and emotional pain, clinicians must expand on a Mind-Body approach and pull in best practices from a variety of disciplines to provide effective interventions for Veterans who are living with chronic pain.

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